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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

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“Step Out From the Old to the New”

IS 10492 (1983): General requirements and testing of anchor cable stoppers [TED 19: Marine Engineering and Safety Aids]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

GENERAL REQUIREMENTS AND TESTING OF ANCHOR CABLE STOPPERS

- 1. Scope** — Specifies general requirements and acceptance testing of ships' anchor cable stoppers.
- 2. Terminology** — For the purpose of this standard, the following definitions in addition to those given in IS : 8650-1977 'Glossary of Terms and Graphical Symbols for Ship's Deck Machinery' shall apply.
- 2.1 Nominal Size of Stopper** — The nominal size is derived from the minimum and maximum diameters of anchor cable that the stopper will accept.
- 2.2 Class**
- 2.2.1 Class A stopper** — A cable stopper designed and constructed to withstand 80 percent of the nominal breaking load of the maximum diameter and highest grade of chain cable for which it is intended.
- 2.2.2 Class B cable stopper** — A cable stopper designed and constructed to withstand 40 percent of the nominal breaking load of the maximum diameter and highest grade of chain cable for which it is intended.
- 2.3 Handing** — Hinged bar stoppers may be designed as right hand or left hand stoppers.
- 2.3.1 Right hand cable stopper** — A cable stopper having a hinge point for the bar on the right hand side of the stopper when observed from the windlass and looking towards the hawse pipe (see Fig. 1).
- 2.3.2 Left hand cable stopper** — A cable stopper having a hinge point for the bar on the left hand side of the stopper when similarly observed (see Fig. 1).

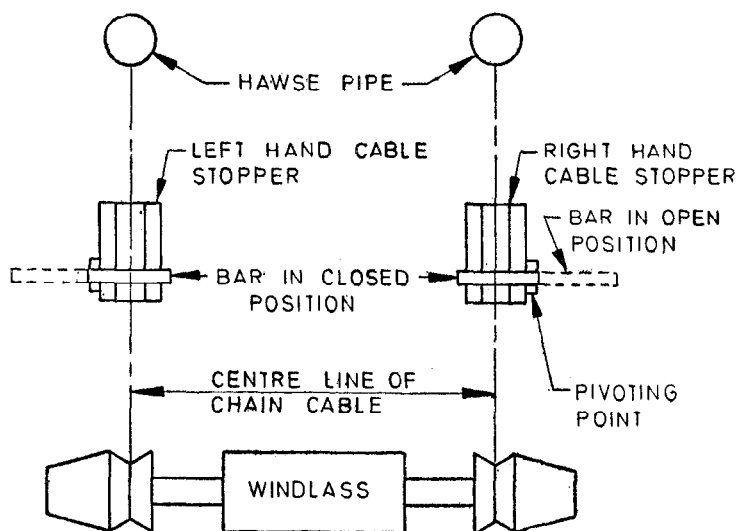


FIG. 1 HANDING OF STOPPERS

2.4 Types

- 2.4.1 Track type stopper** — A cable stopper over which the chain cable passes by sliding. It has a track to guide and keep the chain cable in place (see Fig. 2 and 3).
- 2.4.2 Roller type stopper** — A cable stopper fitted with a roller over which the chain cable passes. The roller may have a shape which takes care of the guide function as well as part of the holding function (see Fig. 4).
- 2.4.3 Combined track and roller stopper** — A cable stopper in which both the above mentioned characteristics (2.4.1 and 2.4.2) are incorporated (see Fig. 3 and 5).

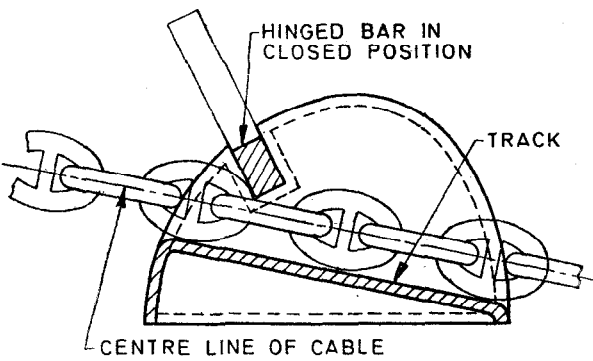


FIG. 2 TRACK-TYPE STOPPER

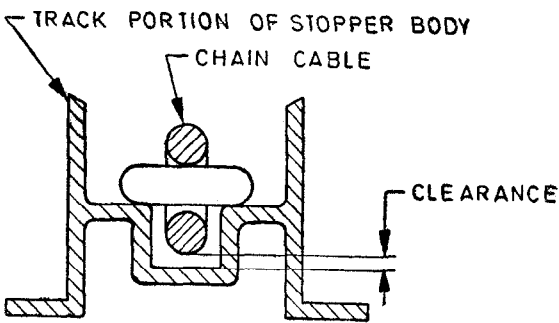


FIG. 3 TYPICAL TRACK SECTION

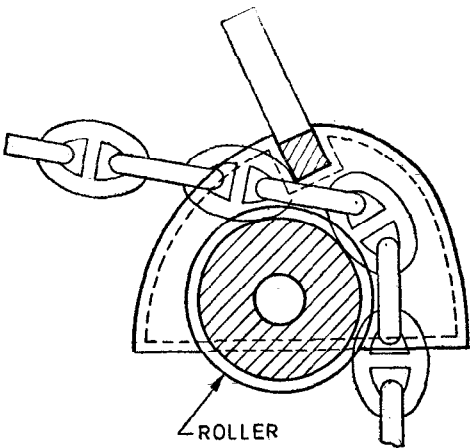


FIG. 4 ROLLER-TYPE STOPPER

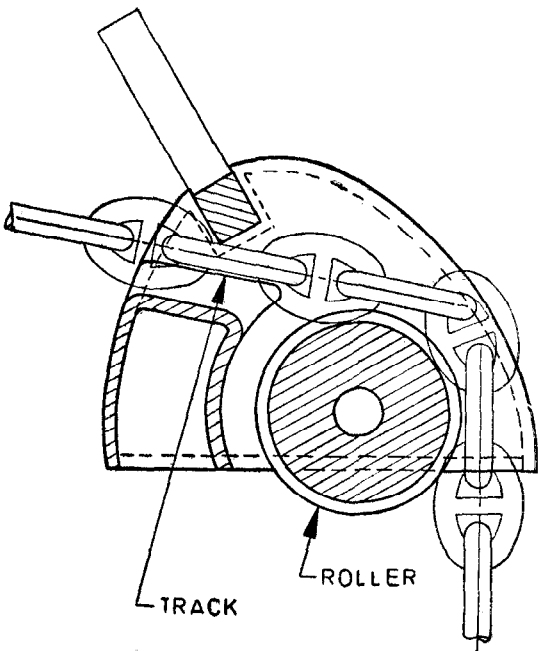


FIG. 5 COMBINED TRACK AND ROLLER STOPPER

3. General Requirements

3.1 The function of the cable stopper is to lock the chain when the ship is already at anchor. The stopper will thus have to take the full load in the chain cable.

The stopper is normally fitted between the cable lifter and the hawse pipe, or the fairlead.

3.2 Class of Stopper — The track-type and combined track, and roller-type stoppers shall comply with the performance requirements of Class A or B as required. The roller-type stopper shall comply with the requirements of Class B only. Roller-type stoppers may have cylindrical rollers or rollers of any suitable design. (see Fig. 6) These stoppers shall be so designed as to prevent high bending moments in the cable links.

3.3 Method of Securing — The anchor cable shall be secured by a bar hinged at one end or a pivoting pawl engaging against a vertical link of the anchor cable to restrain the outward movement of the cable. The bar-type stopper produces a line of engagement at right angles to the direction of the anchor cable; the pawl-type stopper involves in line engagement with the anchor cable.

3.3.1 The stopper shall be so designed as to allow the anchor cable to be heaved whilst the bar or pawl is in the closed position, the bar or pawl being lifted by the passage of each vertical link of the anchor cable and dropping back by gravity action into the closed position after each vertical link has passed. Both bar and pawl-type stoppers may be provided with a counterweight arrangement to partially offset the dead weight affect of the bar or pawl as an aid to manual operation and adjustments.

3.3.2 When specified by the purchaser, provision shall be made for a positive form of locking device to secure the bar or pawl in the closed or holding position.

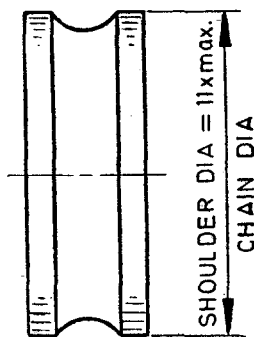


FIG. 6 SHOULDER DIAMETER

3.3.3 Means shall be provided to adequately secure the stopper to the deck, bearing in mind accessibility for welding. Alternately, the stopper may be of bolt-on type.

3.3.4 The cable stoppers may be fitted with a lashing device for holding the anchor tight in its housed position. This lashing shall hold at least a load equal to twice the anchor weight plus 10 m of chain cable.

3.4 The operation of the cable stopper shall be easily understandable. The stopper shall be easy to operate and safe for the operator. Parts which may cause danger to the operator by unintended movements shall be fitted with locking devices.

3.5 Material Stresses — Maximum allowable stress in any part of the stoppers shall not exceed 90 percent of the 0.2 percent proof stress of the material of that part. On stoppers where rollers are fitted, it is assumed for design purposes that the cable passes through an angle of 90°.

3.5.1 If a lashing device is considered part of a chain stopper the stresses in the lashing device shall not exceed 0.4 of the yield stress of the material.

3.6 Material — The material used for the construction of the stopper shall be in accordance with the appropriate Indian Standard for the materials selected to ensure compliance with 3.5. The material should have an elongation at fracture of a standard test piece of not less than 12 percent.

3.7 Welding — All welding shall be carried out in accordance with IS : 823-1964 'Code of procedure for manual metal arc welding of mild steel'.

3.8 Lubrication — Adequate and accessible greasing and oiling points shall be provided to ensure that all required surfaces are capable of being properly lubricated. Lubricating nipples shall be in accordance with IS : 4009 (Part I)-1981 'Button head grease nipples (first revision)' and IS : 4009 (Part II)-1981 'Conical head grease nipples (first revision)'.

3.9 Protection of Metallic Surfaces — Surfaces shall be free from moisture, oil, grease, dirt, weld spatter, burrs or other imperfections, before applying the protective finish to metallic surfaces.

3.9.1 Surfaces shall be primed with an anti-corrosive priming paint adequate to provide protection against a marine environment, as soon as practicable after completion of the surface preparation.

3.10 Information from the Purchaser — The information to be provided by the purchaser is given in Appendix A.

4. Acceptance Tests

4.1 Shop Inspection — All stoppers shall be subjected to a visual inspection at the place of manufacture to ensure:

- a) correct operation of the bar or pawl;
- b) freedom of rotation of the roller (if fitted); and
- c) quality of workmanship.

4.1.1 Shop inspection shall be performed by the manufacturer and if agreed to between the manufacturer and the purchaser, to be witnessed by a classification society representative.

4.2 On-Board Tests and Inspections

4.2.1 It is recommended that the ship owner should arrange for the following inspections and tests to be carried out on-board the ship to ensure that the stoppers are fully operable.

4.2.2 Primary inspections

- a) Check the securement of the stopper to the deck and its correct alignment relative to the anchor cable;
- b) Check the correct operation of the bar or pawl;
- c) Ensure that sufficient oil or grease or both oil and grease of the correct type are provided to ensure adequate lubrication;
- d) Ensure the freedom of rotation of the guide roller (if fitted);
- e) Ensure that the anchor cable runs freely through the stopper in the open position; and
- f) Test the bar or pawl in the closed position for effective operation, including any locking device (if fitted).

4.2.3 Additional tests — Other tests may be requested by the purchaser at his expense and convenience.

5. Designation

5.1 Cable stoppers shall be designated by:

- a) its nominal size;
- b) handing (' R ' for right hand and ' L ' for left hand);
- c) Class (A or B);
- d) Type (' T ' for track type, ' C ' for combined track and roller type and ' R ' for roller type); and
- e) Number of this Indian Standard.

Example: Designation of a cable stopper of nominal size 90 and 92 mm left hand, class A, roller type stopper shall be:

“ Cable stopper 90/92 L, A, R, IS : 10492 ”.

6. Marking

6.1 All stoppers shall be permanently marked by means of a rating plate, prominently displayed.

The rating plate shall contain information relevant to the stopper including the following:

- a) Manufacturer's name or trade-mark, type number and serial number;
- b) Number of this Indian Standard;
- c) Nominal size;
- d) Class; and
- e) Handing and type of stopper.

6.2 ISI Certification Marking — Details available with the Indian Standards Institution.

APPENDIX A

(Clause 3.10)

INFORMATION TO BE PROVIDED BY THE PURCHASER

A-1. The purchaser shall provide the manufacturer of the stopper with the following basic information at the time of the enquiry:

- a) Anchor cable stopper to IS : 10492;
- b) Nominal size of stopper;
- c) Diameter of anchor cable;
- d) Class A or B;
- e) Type (see 2.4);
- f) Handing (see 2.3);
- g) If counterweight is required (see 3.3.1);
- h) If locking device is required;
- j) If additional tests are to be performed, and
- k) Additional paints specification as required.